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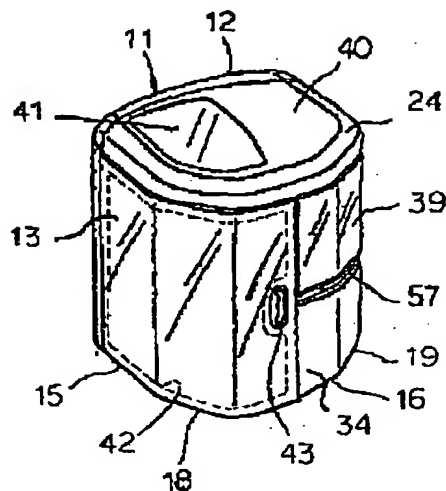
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TITLE : CAB FOR CONSTRUCTION MACHINE



ABSTRACT : **PROBLEM TO BE SOLVED:** To provide a cab for a construction machine in which the front face is easily opened and the visibility is improved and a driver can easily get in and out and a bright indoor space where a driver's oppressive feeling does not arise is secured.

SOLUTION: This cab for a construction machine in which the outside side faces at the door side are mounted close to the outer periphery of a revolving base, is constituted of plane-form front faces 15 continuously connected to the inside side faces, an outside side faces 16, and a rear face. The front and rear parts are almost symmetrical and polygonal around the center and the front face and a part of the outside side face are opened continuously. Transparent doors 13 formed to close the opening in the same shape are supported respectively by slide rails through arms and rollers and composed of corner faces 18, 19 connecting the front face, the outside side face, and the rear face. Hence, the front side is widely visible even when the door is closed and it does not impart an oppressive feeling. Since respective faces are plane and arranged to cross at right angles except corner faces, the outside images are not deformed and since the shape of the cab is normal, in this sense as well, there is no oppressive feeling.

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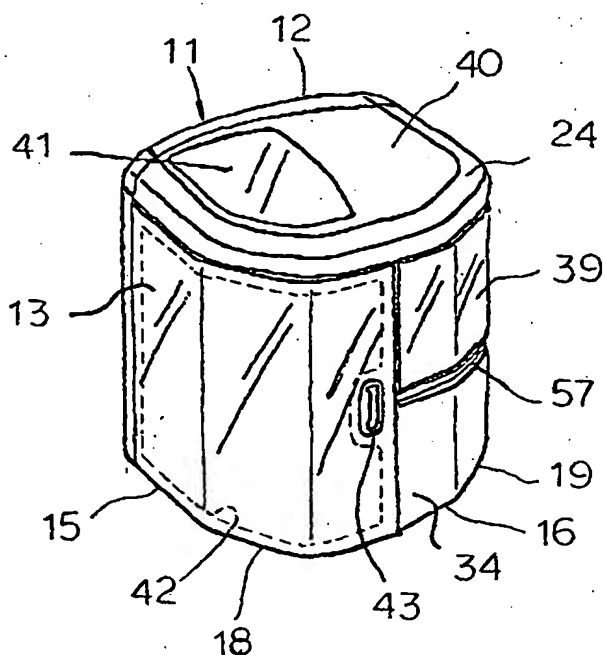
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(54) 【発明の名称】 建設機械のキャブ

(57) 【要約】 (修正有)

【課題】 前面の開放が容易にでき、視認性と乗降性を向上し、且つ運転者へ圧迫感を生じない明るい室内空間をもつ建設機械のキャブを提供する。

【解決手段】 扉側の外側側面を旋回台の外周に近接して搭載する建設機械のキャブで、内側側面に連続した平面状の前面15、外側側面16及び後面とからなる、中心に対し前後がほぼ対称な多角状となし、前面と外側側面の一部を連続して開口するとともに、開口部を同形に塞ぐよう形成した透明な扉13をアーム及びローラを介して、スライドレールに各支持し、前面、外側側面及び後面を接続するコーナ面18、19とからなり、閉扉時も前方が広く視認でき、且つ圧迫感も受けず、また各面が平面状で、コーナ面を除いて直角に交わるから外の像が歪むことなく、同時にキャブの形状が正常故、この点でも圧迫感がない。



【特許請求の範囲】

【請求項1】扉側の外側側面を旋回台の外周に近接して搭載する建設機械のキャブにおいて、該キャブを平面視で、内側側面に連続した平面状の少なくとも前面、外側側面及び後面とからなる、中心に対して前後がほぼ対称な多角状となし、前面と外側側面の一部を連続して開口するとともに、該開口部を同形に塞ぐよう前面から外側側面の一部にわたる透明な扉をアーム及びローラを介して、前記開口部における屋根部内周付近及び／又は床部外周付近と、外側側面の残部から後面にかけて設けたスライドレールに各支持せしめたことを特徴とする建設機械のキャブ。

【請求項2】扉側の外側側面を旋回台の外周に近接して搭載する建設機械のキャブにおいて、該キャブを平面視で、内側側面に連続した平面状の前面、外側側面及び後面とこれらを接続するコーナ面からなる、中心に対して前後がほぼ対称な多角状となし、前面と外側側面の一部を連続して開口するとともに、該開口部を同形に塞ぐよう前面から外側側面の一部にわたる透明な扉をアーム及びローラを介して、前記開口部における屋根部内周付近及び／又は床部外周付近と、外側側面の残部から後面にかけて設けたスライドレールに各支持せしめたことを特徴とする建設機械のキャブ。

【請求項3】前記扉が、開閉時はキャブの開口部側の外周に沿って移動し、完全開扉時には外側側面の残部及び後面に沿って旋回台半径内に位置することを特徴とする請求項1又は請求項2記載の建設機械のキャブ。

【請求項4】前記扉が、中間に柱を備えたことを特徴とする請求項1又は請求項2又は請求項3記載の建設機械のキャブ。

【発明の詳細な説明】**【0001】**

【産業上の利用分野】本発明は、視界が広く且つ扉を大きく開口できる建設機械のキャブ（運転室）に関する。

【0002】

【従来の技術】近年建設機械は、殊に悪天候時又は寒冷時の運転者の作業環境を良好に保持するため、ほぼ密閉できるキャブ（運転室）を備えることが慣例となってきた。この場合、室内に外気を取り入れるためや、身体を乗り出して作業現場を見たり、操縦するために、例えば実開昭63-181516号公報に開示され図10に示すような、キャブ1の前面に開閉乃至取り外せる上窓2及び下窓3を設けることが実用化されている。即ち、これはキャブ1の前面ポスト1aの左右内側の下方部に下窓用ガイドレール4を、またその上方部に上窓用ガイドレール5を設け、該ガイドレール5は屋根1bの左右内側をキャブ1の後方まで延長5aしておくとともに、前記下窓3は下窓用ガイドレール4に嵌入してロック金具6で固定できるようにし、また前記上窓2は上下端に備えたローラ7、7'を介して通常は前記上窓用ガイドレ

ール5の前面ポスト1a側に縦に嵌入し、別途ロック金具（図示せず）で固定されているものであり、このような状態の上窓2及び下窓3によってキャブ1の前面は密閉されているのである。

【0003】ここで、前面を開放したいときは、図示しない別途ロック金具を外した上、上窓2を上方に押し上げつつ、上のローラ7を上窓用ガイドレール5の延長部5aに水平に滑らせ、最終的には上窓2全体を前記延長部5aにて支持、固定するように格納する。一方、下窓3は前記ロック金具6を外してから下窓用ガイドレール4内を滑らせて上方に引き抜き、これを例えばキャブ1内後方の左又は右に固定した収納枠8に収納し、止め金9で固定するのである。

【0004】しかしながら、前記上窓2と下窓3を各々ガイドレール5、4に嵌入した状態で両者を密閉状態に保つことは、建設機械の作業環境から非常に困難であるばかりでなく、この密閉状態を保つためのシールの設置などにより両窓2、3の開閉が重くなり、殊に上窓2は大きいためその操作は一種の重労働となる。また、下窓3は建設機械の操向及び作業に伴う泥はね等を受けやすく、このため下窓3をキャブ1内へ持ち込むことがはばかられて、つい外さないまま不便を承知で作業を続けることが多い。

【0005】そこで、特開平6-40250号公報に開示されたように、上窓の上端両側に各々ワイヤを取り付け、これをガイドレールに沿ってキャブ後端に延ばし、ここでそれぞれのワイヤをモータで回転するドラムに巻き取ることにより、上窓を人力によらずに前記の如く引き上げることも考えられるが、製作誤差等で2本のワイヤを均等に巻き上げることが難しく、上窓がガイドレールとの間で競ったりして円滑に上昇しないおそれがあり、コストも当然高い。

【0006】更に、従来実用化されている建設機械のキャブではいずれも、前面ポスト（柱）は左右に設けられており、しかも前記ガイドレールを設けるものではかなり太いものとする必要があるので、建設機械の走行時、作業時の視認性を著しく悪くし、また圧迫感を与えている。殊に左側のポストは、上記のほか、通常側面に設置される扉の開口面積を制限して乗降性をも悪化させているのが現状である。

【0007】従来実用化されている建設機械のキャブでは、前記の如き問題点があるので、比較的小型の建設機械では、いわゆるキャノピ仕様と称する簡易なひさしと覆いだけを備えたものが使用されているが、当然悪天候時や冬期には運転者の作業環境は最悪となる。例えば特開平6-240707号公報又は実開平3-40175号公報に開示されているように、天候等に応じてキャブを脱着可能としたものもあるが、その脱着にかなりの手間と時間を要し、また天候急変の際には間に合わないおそれがある。

【0008】一方、特開平7-216936号公報には、小型バックホウのキャブとして、バックホウの旋回半径を小さく維持しながら運転居住性を向上し、乗降を容易にすることを目的として、円形旋回台に運転キャビン（註：キャブ）を、その側壁が平面視で前部、横外側部、後部にわたって円形旋回台の周縁部に沿う円弧状になる状態で設け、キャビン側壁のうち前部から横外側部前側部分にわたる範囲のスライドドアを、円形旋回台の周縁部に沿って後方へスライド開放自在に取り付けたものが開示されている。

【0009】この技術によれば、確かにキャブ前部のみでなく横外側部前側部分にわたって開放でき、しかも左側ポストがないから、運転者のキャブ前方への乗り出し、乗降が容易にでき、視認性も向上することが期待できそうだが、キャブを円形旋回台の周縁部に沿う円弧状になる状態で設けたので、殊に前部及び後部が狭く機器の搭載に不便であるばかりでなく、ガラスが円弧を描いているので屈折があって正確な視野が得られず、また、前記ガラスの円弧部分は通常の室の観念と異なるので運転者に圧迫感を与えるという問題点がある。

【0010】

【発明が解決しようとする課題】よって本発明の解決すべき課題は、前面の開放を容易になし得るとともに、視認性と乗降性を向上でき、しかも運転者への圧迫感を生ぜしめない明るい室内空間を有する建設機械のキャブを提供することにある。

【0011】

【課題を解決するための手段】前記課題を解決するため本発明建設機械のキャブは、扉側の外側側面を旋回台の外周に近接して搭載する建設機械のキャブにおいて、該キャブを平面視で、内側側面に連続した平面状の少なくとも前面、外側側面及び後面とからなる、中心に対して前後がほぼ対称な多角状となし、前面と外側側面の一部を連続して開口するとともに、該開口部を同形に塞ぐよう前面から外側側面の一部にわたる透明な扉をアーム及びローラを介して、前記開口部における屋根部内周付近及び／又は床部外周付近と、外側側面の残部から後面にかけて設けたスライドレールに各支持せしめた第1の発明と、第1の発明に前記前面、外側側面及び後面を接続するコーナ面を追加した第2の発明とからなる。

【0012】

【発明の実施の形態】本発明の実施の形態を図1乃至図8により詳細に説明すると、ここに示すものは、前記第2の発明の実施態様であるが（第1の発明の実施態様は後記する）、第2の発明に係るキャブ11は、キャブ本体12と扉13とからなり、全体として平面視で、内側側面14に連続した平面状の前面15、外側側面16及び後面17とこれらを接続するコーナ面18、19とからなる、中心に対して前後がほぼ対称な多角状となっており、このようなキャブ11は、図4に示すようにキャ

タピラ等の走行装置20に支持される旋回台21上において、作業アタッチメント22の左側に、該アタッチメント22を挟んで設置した機械装置23ととともに搭載されている。

【0013】この例の前記キャブ本体12は、図8に示す分解図でも明らかなように、屋根部を構成するルーフ枠材24と床枠材25及び床板26とを、連結部材27及び図示しない溶接、ボルト締結手段によって、後記の如く所定間隔をおいて配設したポスト（柱）28、29、30、31の上下端に固定し、連結するとともに、ポスト28、29間の下方に内側側面パネル32を、ポスト29、30間の下方に後面パネル33を、またポスト30、31間の下方に一部コーナ面19を兼ねる外側側面パネル34を各々配設し、各々隣接するポストに固定する。前記ポスト28は、内側側面14の前端と前面15の内側端の交差する位置に、ポスト29は、内側側面14の後端と後面17の内側端の交差する位置に、ポスト30は、後面17の中間位置に、そしてポスト31は、外側側面16のほぼ中間位置に各々配設され、ここに前面15の内側端からコーナ面18を経て外側側面16の中間部分までに到る後記扉13用の開口部35が形成される。

【0014】又、前記内側側面パネル32、後面パネル33、及び外側側面パネル34の上方には各々内側側面ウインド37、後面ウインド38及び外側側面ウインド39が取り付けられるが、外側側面ウインド39と外側側面パネル34との間には、図6に詳細を示すようなセントスライドレール57が水平に設置される。なお、図1、図2及び図8において40は屋根部の一部であるルーフパネルで、その前方側にルーフウインド41が設けられており、パネル40は周囲を前記ルーフ枠材24に固定されている。

【0015】前記扉13はほぼ2面を開放し得るいわゆるスライドドア形式の扉で、前記開口部35を同形に塞ぐよう、前面15から外側側面16の一部にわたって連続して形成した、上下方向には床板26付近からルーフ枠材24下面付近に到る長さをもつ透明なガラス又はプラスチック製の扉である。前記扉13は実際には、図8に示す補強枠36と42が一体化されて内側からその外周付近に固定され、ハンドル43のほかロック機構（図示せず）などが設けられている。なお、強度上必要な場合又はワイパ等の取付けに便ならしめるため、例えば前面15相当部分とコーナ面18相当部分との境に、視界の妨げとならない程度の細い柱部材を配設することも考えられる。

【0016】前記扉13には、内側側面14側の端部付近の上方に、図5に詳細示す如く、先端に水平方向に回転するローラ44を支持したローラアーム45を取り付け、また該ローラアーム45の下方の端部付近に、図7に詳細示す如く、先端にそれぞれ水平方向及び垂直方向

に回転するローラ46、47を支持したローラアーム48を取り付けるとともに、外側側面16側の端部付近の上下方向の中間位置には、図6に詳細示す如く、先端にそれぞれ水平方向及び垂直方向に回転するローラ49、50を支持したローラアーム51を、ピン52で連結したリンク53及び固定アーム54を介して取り付けしている。

【0017】55はアップスライドレールで、前記ルーフ枠材24の内側部24'に固定されている。また56はロウスライドレールで、図7のように前記ローラ46が嵌入する下に凹のレール56aと、前記ローラ47が回転する横し字形をなすレール56bとからなり、両レール56a、56bは各床板26に固定されている。前記アップスライドレール55、ロウスライドレール56は図3に示す如く、前記開口部35の前面15の内側側面14側端部付近から、前面15、コーナ面18及び外側側面16の一部に沿って同形に配設されており、その内側側面14側端部付近では、扉13を閉じたとき扉をポスト28と面一とするためキャブ11内に曲げている。

【0018】また、57はセンタスライドレールで、図6に示すように前記ローラ49が嵌入する下に凹のレール57aと、前記ローラ50が回転する平のレール57bとからなり、図3に示すごとく前記ポスト31付近から、外側側面16の残部、コーナ面19及び後面17の一部に沿ってポスト30まで同形に配設されており、ポスト31付近では、扉13を閉じたとき扉を外側側面16と面一とするためキャブ11内に曲げている。上記のように構成した扉13は、内側側面14側の上のローラ44をアップスライドレール55に、下のローラ46、47をロウスライドレール56のレール56a、56bに、又外側側面16側のローラ49、50をセンタスライドレール57のレール57a、57bに、それぞれ嵌入してキャブ本体12に取り付ければ、本発明キャブ11は完成する。

【0019】以上のように構成された本発明建設機械のキャブ11では、前記開口部35を扉13により図1及び図3の左側のように閉じているときは、キャブ11内は風雨、寒気等から遮断されているが、前記前面15及び外側側面16の前方部分の外方は透明な扉13を通して、又内側側面14、後面15、外側側面16の後方部分及びルーフ40の外方は各々内側側面ウインド37、後面ウインド38、外側側面ウインド39及びルーフウインド41を通してそれぞれ視認性よく確認できる。殊に、扉13に従来図2の如くあった前面左側ポストPを全くなくしたもので、透明なコーナ面（コーナ面18に対応）となっているので視野を阻害されることなく、圧迫感も受けない。

【0020】乗降及び作業上の必要から前面15を開きたいときは、ハンドル43又は図示しない内部のハンド

ルにより扉13を開放方向、即ちキャブ11の後方側に引けば、扉13はローラ44、46、47及び49、50が各々スライドレール55、56及び57を転動してキャブ本体12の周囲を滑らかに移動する。このとき、扉13の殊にコーナ面18に相当する部分は、前記旋回台21の外周より一旦突出するが、図2のように扉13が全開した状態では、図3の右側の如く扉13は旋回台21内に収納され、作業に支障を生じない。

【0021】本発明第1の発明の実施態様は、図9に示すように、キャブ11'は平面視で、内側側面14'に連続した平面状の前面15'、外側側面16'及び後面17'とからなる、中心に対して前後がほぼ対称な多角状をなしており、前面15'と外側側面16'の一部（前方部分）を連続して開口するとともに、これを同形に塞ぐよう前面15'から外側側面16'の一部にわたる透明な扉13'を図5乃至図7に示すと同様の上下、中間のアーム45'、51'等及びローラ44'、49'等を介して、前記第2の発明と同様、前記開口部における屋根部内周付近及び床部外周付近と、外側側面の残部から後面にかけて設けたスライドレール55'等及び57'に各支持せしめたものである。

【0022】以上のように構成された第1の発明の建設機械のキャブ11'では、前記開口部を扉13'により図9の左側のように閉じているときは、キャブ11'内は風雨、寒気等から遮断されているが、前記前面15'及び外側側面16'の前方部分の外方は透明な扉13'を通して、又内側側面14、後面15、外側側面16の後方部分及び屋根部の外方は、第2の発明の実施態様と同様、内側側面ウインド、後面ウインド、外側側面ウインド及びルーフウインドを設ければ、これを通してそれぞれ視認性よく確認できる。扉13'に従来図2の如くあった前面左側ポストPを全くなくしたもので、透明なコーナとなっているので、これも第2の発明と同様、視野を阻害されることはなく、また第2の発明のものより前面15'、外側側面16'が広く両者が小さな半径の曲面で直角に連結されているので、更に圧迫感を感じることがない。

【0023】乗降及び作業上の必要から前面15'を開きたいとき、扉13'をキャブ11'の後方側に引けば、扉13'はローラ44'、49'等が各々スライドレール55'等及び57'を転動してキャブ本体12'の周囲を滑らかに移動する。このとき、扉13'の殊に前面15'相当部分と外側側面16'相当部分との連結コーナ部分は、第2の発明のものより大きく前記旋回台21の外周より一旦突出するが、図9の右側のように扉13'が全開した状態では、扉13'は旋回台21内に収納され、作業に支障を生じない。

【0024】

【発明の効果】本発明では、扉側の外側側面を旋回台の外周に近接して搭載する建設機械のキャブにおいて、該

キャブを平面視で、内側側面に連続した平面状の少なくとも前面、外側側面及び後面とからなる、中心に対して前後がほぼ対称な多角状となし、前面と外側側面の一部を連続して開口するとともに、該開口部を同形に塞ぐよう前面から外側側面の一部にわたる透明な扉をアーム及びローラを介して、前記開口部における屋根部内周付近及び／又は床部外周付近と、外側側面の残部から後面にかけて設けたスライドレールに各支持せしめた第1の発明と、第1の発明に前記前面、外側側面及び後面を接続するコーナ面を追加した第2の発明とからなるので、扉を全閉した状態でも前方が広く視認でき、このとき殊に扉に柱を全く設けないものでは視界が優れ、また圧迫感も受けることがなく、また前記各面が平面状で、コーナ面を除いて直角に交わっているから外の像が歪むことがなく正確な視野が得られるとともに、キャブの形状が正常であるから、この点からも圧迫感を受けることがない。

【0025】また、キャブの前面等を開放したいときは、扉を開けば上から下まで大きく開放されるから、従来の格納できる上窓、下窓を有するキャブにおける動作と比較して簡単でしかも労力も少なくて済む。また、上窓の収納箇所の確保の必要がないから、いわゆるヘッドスペースを大きくとることができ、作業環境の向上に役立ち、また物入れ等の設置もできる。また扉を全開したときは、乗降が容易に行えるばかりでなく、扉がキャブの外側側面の残部及び後面に沿って旋回台半径内に位置するので、旋回台を旋回する作業時にも最小半径で支障なく作業ができる。更に、スライドレールと扉の装着の有無で、キャブをキャブ仕様とキャノピ仕様とに簡単に使い分けられ、キャブのコスト低減が図れ、また管理が容易となる効果もある。

【図面の簡単な説明】

【図1】本発明建設機械のキャブの一例を示す全体斜視図で、扉の全閉時を示す。

【図2】本発明建設機械のキャブの一例を示す全体斜視図で、扉の全開時を示す。

【図3】本発明建設機械のキャブの一例におけるスライドレールと扉との関係を示す平面略示図。

【図4】本発明建設機械のキャブの一例を建設機械に搭載した状態を示す略示図。

【図5】本発明建設機械のキャブにおけるアッパスライドレールとこれに嵌入したローラを示す一部断面図。

【図6】本発明建設機械のキャブにおけるセンタスライドレールとこれに嵌入したローラを示す一部断面図。

【図7】本発明建設機械のキャブにおけるロワスライドレールとこれに嵌入したローラを示す一部断面図。

【図8】本発明建設機械のキャブの一例の分解斜視図。

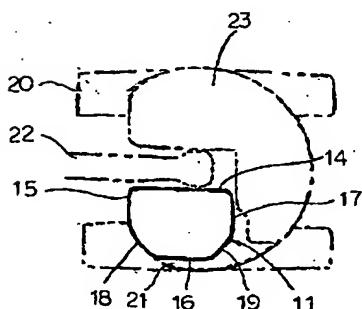
【図9】本発明建設機械のキャブの他の例におけるスライドレールと扉との関係を示す平面略示図。

【図10】従来の建設機械のキャブの一部断面図。

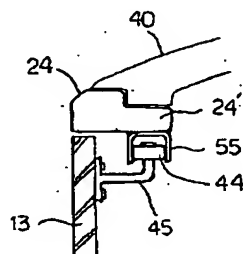
【符号の説明】

- | | | | |
|------------------|------------|------------------------|------------|
| 11、11' | キャブ | 12、12' | キャブ本体 |
| 13、13' | 扉 | | |
| 14、14' | 内側側面 | 15、15' | 前面 |
| 16、16' | 外側側面 | | |
| 17、17' | 後面 | 18、19 | コーナ面 |
| | | 20 | 走行装置 |
| 21 | 旋回台 | | |
| 22 | 作業アタッチメント | 23 | 機械装置 |
| | | 24 | ルーフ枠材 |
| 25 | 床枠材 | 26 | 床板 |
| 27 | 連結部材 | | |
| 28、29、30、31 | ポスト | 32 | 内側側面パネル |
| | | | |
| 33 | 後面パネル | 34 | 外側側面パネル |
| 35 | 開口部 | | |
| 36、42 | 扉の補強枠 | 37 | 内側側面ウインド |
| 38 | 後面ウインド | | |
| 39 | 外側側面ウインド | 40 | ルーフパネル |
| 41 | ルーフウインド | | |
| 43 | ハンドル | 44、44'、46、47、49、49'、50 | ローラ |
| 45、45'、48、51、51' | ローラアーム | | |
| 52 | ピン | 53 | リンク |
| 54 | 固定アーム | | |
| 55 | アッパスライドレール | | |
| 56 | ロワスライドレール | 57 | センタスライドレール |
| 55'、57' | スライドレール。 | | |

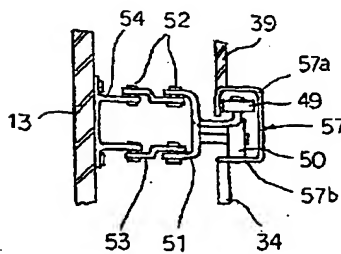
【図4】



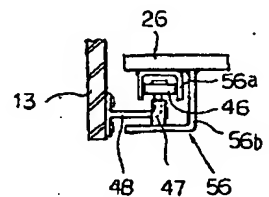
【図5】



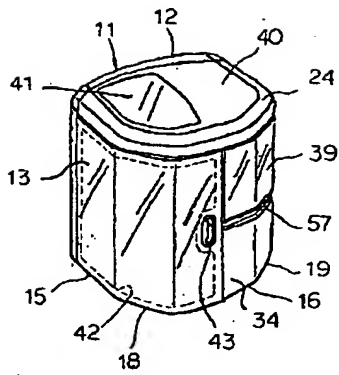
【図6】



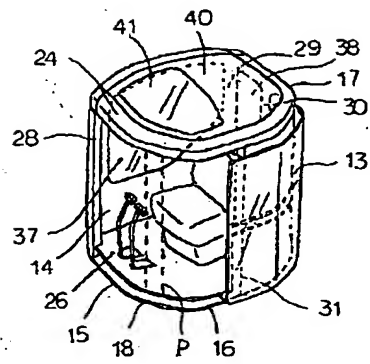
【図7】



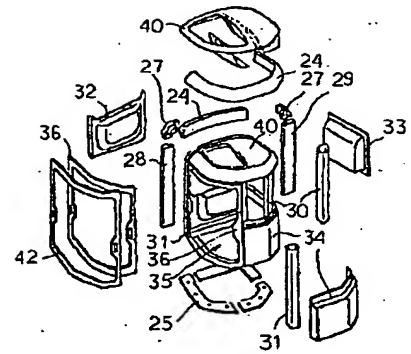
【図1】



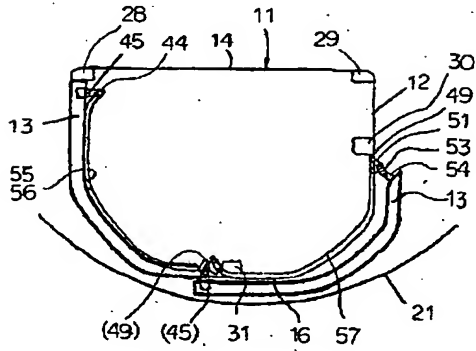
【図2】



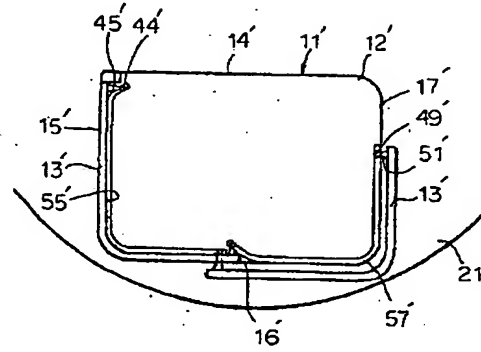
【図8】



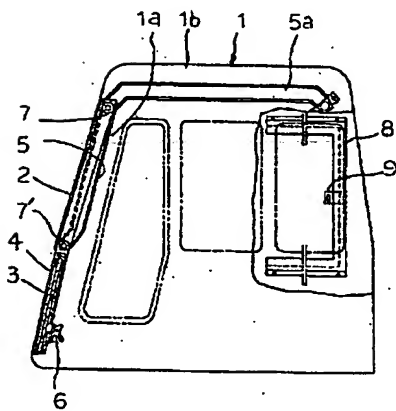
【図3】



【図9】



【図10】



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CLAIMS

[Claim(s)]

[Claim 1] In the cab of the construction equipment which approaches and carries the outside side face by the side of a door in the periphery of a swivel base this cab by plane view While order carries out opening of a part of shape of multiple [almost symmetrical], nothing and a front face, and outside side face continuously to the core of the plane which followed the inside side face which consists of a front face, an outside side face, and a rear face at least An arm and a roller are minded for the transparent door covering a part of outside side face from a front face so that this opening may be plugged up to isomorphism. The cab of the construction equipment characterized by making the slide rail prepared in the rear face near [in said opening] roof section inner circumference and/or near a floor periphery, and from the remainder of an outside side face, having covered each support.

[Claim 2] In the cab of the construction equipment which approaches and carries the outside side face by the side of a door in the periphery of a swivel base this cab by plane view While order carries out opening of a part of shape of multiple [almost symmetrical], nothing and a front face, and outside side face continuously to the core which consists of a corner side which connects these with the plane front face, outside side face, and rear face which followed the inside side face An arm and a roller are minded for the transparent door covering a part of outside side face from a front face so that this opening may be plugged up to isomorphism. The cab of the construction equipment characterized by making the slide rail prepared in the rear face near [in said opening] roof section inner circumference and/or near a floor periphery, and from the remainder of an outside side face, having covered each support.

[Claim 3] The cab of a construction equipment according to claim 1 or 2 with which said door is characterized by moving along with the periphery by the side of opening of a cab mostly at the time of closing motion, and being located in a swivel-base radius along the remainder and the rear face of an outside side face at the time of full door opening.

[Claim 4] The cab of a construction equipment according to claim 1, 2, or 3 with which said door is characterized by having a column in the middle.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the cab (driver's cabin) of a construction equipment to which a field of view can carry out opening of the door greatly widely.

[0002]

[Description of the Prior Art] In order that a construction equipment may hold the work environment of the operator at the time of SIGMET or chill good especially, it is a practice to have the cab (driver's cabin) which can be sealed mostly in recent years. In this case, forming closing motion thru/or the upper aperture 2 which can remove, and the lower aperture 3 in the front face of the cab 1 as indicated by JP,63-181516,U in order to lean out in order to adopt the open air indoors, to see a work site or to control, and shown in drawing 10 is put in practical use. This in the lower part section inside [right-and-left] front post 1a of a cab 1 namely, the guide rail 4 for lower apertures Moreover, while the guide rail 5 for upper apertures is formed in the upper part section and this guide rail 5 extended a Carries out the right-and-left inside of roof 1b to the back of a cab 1 Insert said lower aperture 3 in the guide rail 4 for lower apertures, and it enables it to fix it by the lock metallic ornaments 6. Moreover, said upper aperture 2 is usually perpendicularly inserted in the front post 1a side of said guide rail 5 for upper apertures through the roller 7 and 7' with which the vertical edge was equipped. It is separately fixed by lock metallic ornaments (not shown), and the front face of a cab 1 is sealed by the upper aperture 2 and the lower aperture 3 of such a condition.

[0003] Here, after removing the special lock metallic ornaments which are not illustrated to open a front face wide, pushing up the upper aperture 2 up, it lets the upper roller 7 slide at a level with extension 5a of the guide rail 5 for upper apertures, and it stores so that the upper aperture 2 whole may be supported in said extension 5a and it may finally fix. On the other hand, after the lower aperture 3 removes said lock metallic ornaments 6, it lets the inside of the guide rail 4 for lower apertures slide, draws it out up, it contains this in the receipt frame 8 fixed to the left or right of the back in a cab 1, and fixes it by the clasp 9.

[0004] However, closing motion of both the apertures 2 and 3 becomes heavy by installation of the seal for maintaining it being very difficult not only from the work environment of a construction equipment to maintain both at a sealing condition, where said upper aperture 2 and the lower aperture 3 are respectively inserted in guide rails 5 and 4 but this sealing condition etc., and since the upper aperture 2 is especially large, it becomes hard work of a kind [actuation / that]. Moreover, it is easy to receive the splashes of mud accompanying steering and the activity of a construction equipment etc., and to carry in the bottom aperture 3 into a cab 1 for this reason is hesitated, and the lower aperture 3 continues an activity for inconvenience by consent in many cases, not removed just.

[0005] Then, as indicated by JP,6-40250,A, a wire is respectively attached in the upper limit both sides of an upper aperture. Although pulling up like the above, without depending an upper aperture on human power by extending this to the cab back end along with a guide rail, and rolling round each wire here to the drum which rotates by the motor is also considered It is difficult to wind up two wires equally with a manufacture error etc., and there is a possibility that

an upper aperture may compete between guide rails and may not go up smoothly, and, naturally cost is also high.

[0006] Furthermore, since each needs to make a front post (column) quite thick in the cab of the construction equipment put in practical use conventionally what is prepared in right and left and moreover prepares said guide rail, at the time of transit of a construction equipment, the visibility at the time of an activity was worsened remarkable, and the feeling of oppression has been given. It is the present condition especially for a left-hand side post to restrict the opening area of the door usually installed in a side face besides the above, and to also worsen getting-on-and-off nature.

[0007] In the cab of the construction equipment put in practical use conventionally, although the simple canopy top called the so-called canopy specification and the thing equipped only with the cover are used in the comparatively small construction equipment since there is a trouble like the above, naturally an operator's work environment becomes the worst in the time of SIGMET, or winter. For example, although there are some which made description of a cab possible according to the weather etc. as indicated by JP,6-240707,A or JP,3-40175,U, there is a possibility that the description may take the most time and effort and time amount, and it may not do in the case of weather sudden change.

[0008] On the other hand to JP,7-216936,A, as a cab of a small back hoe Improve operation amenity, maintaining the TR of a back hoe small, and it aims at making getting on and off easy. The side attachment wall operation CABIN (**; cab) by plane view to a circular swivel base Anterior part, It prepares in the condition of becoming the shape of radii which meets the periphery section of a circular swivel base over a horizontal lateral part and a posterior part, and what attached the slide door of the range covering a part for the flank before a horizontal lateral part in back free [slide disconnection] along with the periphery section of a circular swivel base from anterior part among the CABIN side attachment walls is indicated.

[0009] According to this technique, to be sure, it expects not only cab anterior part but that can perform easily the launch to an operator's cab front and getting on and off, and visibility's improve since it can open over a part for the flank before a horizontal lateral part and there is moreover no left-hand side post, but Since the cab was prepared in the condition of becoming the shape of radii in alignment with the periphery section of a circular swivel base Anterior part and a posterior part are not only narrowly inconvenient to loading of a device especially, but since glass is drawing radii, there is refraction, an exact visual field is not acquired, and since the radii part of said glass differs from the idea of the usual **, it has the trouble of giving an operator a feeling of oppression.

[0010]

[Problem(s) to be Solved by the Invention] Therefore, the technical problem which should solve this invention can improve visibility and getting-on-and-off nature, and is to offer the cab of the construction equipment which has the bright indoor space which moreover does not make the feeling of oppression to an operator produce while it can open a front face easily.

[0011]

[Means for Solving the Problem] In order to solve said technical problem the cab of this invention construction equipment In the cab of the construction equipment which approaches and carries the outside side face by the side of a door in the periphery of a swivel base this cab by plane view While order carries out opening of a part of shape of multiple [almost symmetrical], nothing and a front face, and outside side face continuously to the core of the plane which followed the inside side face which consists of a front face, an outside side face, and a rear face at least An arm and a roller are minded for the transparent door covering a part of outside side face from a front face so that this opening may be plugged up to isomorphism. It consists of near [in said opening] roof section inner circumference and/or near a floor periphery, the 1st invention the slide rail prepared in the rear face from the remainder of an outside side face, having covered was made to each support, and the 2nd invention which added the corner side which connects said front face, an outside side face, and a rear face to the 1st invention.

[0012]

[Embodiment of the Invention] If drawing 1 thru/or drawing 8 explain the gestalt of operation of this invention to a detail, what is shown here Although it is the embodiment of said 2nd invention (the postscript of the embodiment of the 1st invention is carried out), the cab 11 concerning the 2nd invention Consist of a body 12 of a cab, and a door 13, and consist of corner sides 18 and 19 which connect these with the plane front face 15, the outside side face 16, and rear face 17 which followed the inside side face 14 by plane view as a whole. Order serves as the shape of multiple [almost symmetrical] to the core. Such a cab 11 the machinery 23 installed on both sides of this attachment 22 on the left-hand side of the activity attachment 22 on the swivel base 21 supported by the travellers 20, such as a caterpillar, as shown in drawing 4 -- ** -- it is both carried.

[0013] Said body 12 of a cab of this example so that clearly [in the exploded view shown in drawing 8] The roof frame material 24, the **** material 25, and floor plate 26 which constitute the roof section with the connection member 27 and welding which is not illustrated, and a suspension joint means While fixing and connecting with the vertical edge of the posts (column) 28, 29, 30, and 31 which set and arranged predetermined spacing like the postscript Down [between post 28 and 29], the outside side panel 34 which serves as the rear panel 33 down [between post 29 and 30], and serves the inside side panel 32 as the corner side 19 in part down [between post 30 and 31] is arranged respectively, and it fixes to the post which adjoins respectively. Said post 28 in the location where the front end of the inside side face 14 and the inside edge of a front face 15 cross post 29 In the location where the back end of the inside side face 14 and the inside edge of a rear face 17 cross, post 30 As for the mid-position of a rear face 17, and post 31, the opening 35 for after-mentioned door 13 of the outside side face 16 which is respectively arranged mostly in the mid-position and results here by the interstitial segment of the outside side face 16 through the corner side 18 from the inside edge of a front face 15 is formed.

[0014] Moreover, although the inside side-face window 37, the rear-face window 38, and the outside side-face window 39 are respectively attached above said inside side panel 32, the rear panel 33, and the outside side panel 34, between the outside side-face window 39 and the outside side panel 34, the center slide rail 57 as shows a detail to drawing 6 is installed horizontally. In addition, in drawing 1, drawing 2, and drawing 8, 40 is the roof panel which is a part of roof section, the roof window 41 is established in the front side, and the panel 40 is being fixed to said roof frame material 24 in the perimeter.

[0015] Said door 13 is the so-called door of the slide door format that the 2nd [about] page can be opened wide, and as said opening 35 is plugged up to isomorphism, it is a door of transparent glass or the product made of a plastic which was continuously formed covering a part of outside side face 16 from the front face 15 and which has the die length which results near roof frame material 24 inferior surface of tongue from the floor plate 26 neighborhood in the vertical direction. In fact, the reinforcement frames 36 and 42 shown in drawing 8 are unified, said door 13 is fixed near [the] a periphery from the inside, and the lock device (not shown) besides a handle 43 etc. is established. In addition, on reinforcement, when required, if it is facilities, in order to close to anchoring of a wiper etc., arranging pillar section material with thin extent used as the hindrance of a field of view in the boundary of a 15 about front part and a corner 18 about side part is also considered by it.

[0016] said door 13 -- the upper part near the edge by the side of the inside side face 14 -- drawing 5 -- detail **** -- it needs -- The roller arm 45 which supported the roller 44 which rotates horizontally at a tip is attached. moreover, near the edge of the lower part of this roller arm 45 -- drawing 7 -- detail ****, while attaching respectively horizontal at like and a tip, and the roller arm 48 which supported the rollers 46 and 47 which rotate perpendicularly the mid-position of the vertical direction near the edge by the side of the outside side face 16 -- drawing 6 -- detail **** -- the roller arm 51 which supported the rollers 49 and 50 which rotate perpendicularly is attached through respectively horizontal at like and a tip, and the link 53 and fixed arm 54 which were connected by the pin 52.

[0017] 55 is an upper slide rail and is being fixed to inside section 24' of said roof frame material 24. 56 [moreover,] -- ROWASURA -- the id -- it is a rail, and it becomes the bottom which

said roller 46 inserts like drawing 7 from rail 56a of concave, and rail 56b which makes the horizontal L typeface which said roller 47 rolls, and both the rails 56a and 56b are being fixed to each floor plate 26. said upper slide rail 55 and ROWASURA -- the id -- as shown in drawing 3, from near the inside side-face 14 side-edge section of the front face 15 of said opening 35, the rail 56 is arranged by isomorphism along a part of front face 15, corner side 18, and outside side face 16, and it is bent in the cab 11 near [the] the inside side-face 14 side-edge section in order to make a door flat-tapped with post 28, when a door 13 is closed.

[0018] To the bottom which 57 is a center slide rail, and said roller 49 inserts as shown in drawing 6, moreover, rail 57a of concave, As it consists of rail 57b of Taira which said roller 50 rolls and is shown in drawing 3, from said post31 neighborhood Even the post 30 is arranged by isomorphism along a part of remainder of the outside side face 16, corner side 19, and rear face 17, and in the post31 neighborhood, when a door-13 is closed, in order to make a door flat-tapped with the outside side face 16, it is bending in the cab 11. the door 13 constituted as mentioned above -- the roller 44 on the inside side-face 14 side -- the upper slide rail 55 -- the lower rollers 46 and 47 -- ROWASURA -- the id -- the rails 56a and 56b of a rail 56 -- moreover, if the rollers 49 and 50 by the side of the outside side face 16 are inserted in the rails 57a and 57b of the center slide rail 57, respectively and are attached in the body 12 of a cab, this invention cab 11 will be completed.

[0019] Although the inside of a cab 11 is intercepted from a rainstorm, the cold, etc. in the cab 11 of this invention construction equipment constituted as mentioned above when having closed said opening 35 like the left of drawing 1 and drawing 3 by the door 13 A way lets the transparent door 13 pass outside the front parts of said front face 15 and the outside side face 16. Moreover, a way can be respectively checked with respectively sufficient visibility through the inside side-face window 37, the rear-face window 38, the outside side-face window 39, and the roof window 41 outside the back parts of the inside side face 14, a rear face 15, and the outside side face 16, and a roof 40. In what completely lost especially the front left-hand side post P which was in the door 13 like drawing 2 conventionally, since it is a transparent corner side (it corresponds to the corner side 18), a visual field is not checked and a feeling of oppression is not received, either.

[0020] If a door 13 is lengthened to the open direction, i.e., back of cab 11, side by the handle 43 or the internal handle which is not illustrated to open a front face 15 from the need on getting on and off and an activity, rollers 44, 46, and 47, and 49 and 50 will roll the slide rails 55, 56, and 57 respectively, and a door 13 will move smoothly in the perimeter of the body 12 of a cab. Although the part of a door 13 which is especially equivalent to the corner side 18 once projects from the periphery of said swivel base 21 at this time, after the door 13 has opened fully like drawing 2, like the right of drawing 3, a door 13 is contained in a swivel base 21, and does not produce trouble in an activity.

[0021] As the embodiment of invention of this invention 1st is shown in drawing 9, cab 11' is plane view. the inside -- a side face -- 14 -- ' -- having continued -- a plane -- a front face -- 15 -- ' -- an outside -- a side face -- 16 -- ' -- and -- a rear face -- 17 -- ' -- from -- becoming -- While order is making the shape of multiple [almost symmetrical] and carries out opening of a part of front 15' and outside side-face 16' (front part) continuously to a core this -- isomorphism -- closing -- as -- a front face -- 15 -- ' -- from -- an outside -- a side face -- 16 -- a part -- crossing -- being transparent -- a door -- 13 -- ' -- drawing 5 -- or -- drawing 7 -- being shown -- if -- being the same -- the upper and lower sides -- middle -- an arm -- 45 -- ' -- 51 -- ' -- etc. -- and -- a roller -- 44 -- ' -- 49 -- ' -- etc. -- minding -- said -- the -- two -- invention -- the same -- said -- opening -- it can set -- a roof -- the section -- inner circumference -- the neighborhood -- and -- a floor -- a periphery -- the neighborhood -- an outside -- a side face -- the remainder -- from -- a rear face -- applying -- having prepared -- a slide -- a rail -- 55 -- ' -- etc. -- and -- 57 -- ' -- each -- supporting -- making .

[0022] the time of having closed said opening like the left of drawing 9 by door 13' in cab 11' of the construction equipment of the 1st invention constituted as mentioned above -- cab 11' -- inside, although intercepted from a rainstorm, the cold, etc. the door 13 with a way transparent

outside the front parts of said front 15' and outside side-face 16' -- ' -- letting it pass -- moreover, the way outside the back parts of the inside side face 14, a rear face 15, and the outside side face 16, and the roof section -- Like the embodiment of the 2nd invention, if an inside side-face window, a rear-face window, an outside side-face window, and a roof window are prepared, it can check with respectively sufficient visibility through this. In what completely lost the front left-hand side post P which was in door 13' like drawing 2 conventionally, since a visual field is not checked like [this] the 2nd invention since it is a transparent corner, and front 15' and outside side-face 16' are connected with the right angle from the thing of the 2nd invention on the curved surface of a large radius with small both, a feeling of oppression is not felt further. [0023] If door 13' is lengthened to the back side of cab 11' to open front 15' from the need on getting on and off and an activity, roller 44', 49', etc. will roll 57', such as slide rail 55', respectively, and door 13' will move smoothly in the perimeter of body of cab 12'. this time -- door 13' -- especially -- a front face 15 -- 'a considerable part and the outside side face 16' -- although the connection corner part with a considerable part once projects from the periphery of said swivel base 21 more greatly than the thing of the 2nd invention, after door 13' has opened fully like the right of drawing 9, door 13' is contained in a swivel base 21, and does not produce trouble in an activity.

[0024]

[Effect of the Invention] In the cab of the construction equipment which approaches and carries the outside side face by the side of a door in the periphery of a swivel base in this invention this cab by plane view While order carries out opening of a part of shape of multiple [almost symmetrical], nothing and a front face, and outside side face continuously to the core of the plane which followed the inside side face which consists of a front face, an outside side face, and a rear face at least An arm and a roller are minded for the transparent door covering a part of outside side face from a front face so that this opening may be plugged up to isomorphism. Near [in said opening] roof section inner circumference and/or near a floor periphery, and the 1st invention the slide rail prepared in the rear face from the remainder of an outside side face, having covered was made to each support, Since it consists of the 2nd invention which added the corner side which connects said front face, an outside side face, and a rear face to the 1st invention Also where the close by-pass bulb completely of the door is carried out, the front can check by looking widely, a field of view is excellent in what does not prepare a column in a door at all especially at this time, and a feeling of oppression is not received, either. Said each side by the plane Since the configuration of a cab is normal while an outer image is not distorted and an exact visual field is acquired, since the right angle is crossed except for the corner side, a feeling of oppression is not received from this point, either.

[0025] Moreover, if a door is opened, since it will be wide opened greatly from a top to the bottom to open the front face of a cab etc. wide, as compared with the actuation in the cab which has the upper aperture which can store the former, and a lower aperture, it is easy, and there are also few efforts and they end. Moreover, since there is no need for reservation of the receipt part of an upper aperture, the so-called large head space can be taken, and it is useful to improvement in work environment, and installation of a storage etc. can also be performed. Moreover, since it not only can get on and off easily, but a door is located in a swivel-base radius along the remainder and the rear face of an outside side face of a cab when a door is opened fully, an activity is possible in a minimum radius convenient also at the time of the activity which circles in a swivel base. Furthermore, it is effective in using a cab in a cab specification and a canopy specification properly simply, and being able to plan cost reduction of a cab, and management becoming easy by the existence of wearing of a slide rail and a door.

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The whole perspective view showing an example of the cab of this invention construction equipment shows the time of the close by-pass bulb completely of a door.

[Drawing 2] The whole perspective view showing an example of the cab of this invention construction equipment shows the time of full open of a door.

[Drawing 3] The flat-surface sketch showing the relation of the slide rail and door in an example of the cab of this invention construction equipment.

[Drawing 4] The sketch showing the condition of having carried an example of the cab of this invention construction equipment in the construction equipment.

[Drawing 5] the part which shows the roller inserted in the upper slide rail and this in the cab of this invention construction equipment -- a sectional view.

[Drawing 6] the part which shows the roller inserted in the center slide rail and this in the cab of this invention construction equipment -- a sectional view.

[Drawing 7] ROWASURA in the cab of this invention construction equipment -- the id -- the part which shows a rail and the roller inserted in this -- a sectional view.

[Drawing 8] The decomposition perspective view of an example of the cab of this invention construction equipment.

[Drawing 9] The flat-surface sketch showing the relation of the slide rail and door in other examples of the cab of this invention construction equipment.

[Drawing 10] The cab of the conventional construction equipment is a sectional view a part.

[Description of Notations]

11 11' Cab 12 12' Body of a cab 13 13' Door

14 14' Inside side face 15 15' Front face 16 16' Outside side face

17 17' Rear face 18 19 Corner side 20 Traveller 21 Swivel base

22 Activity Attachment 23 Machinery 24 Roof Frame Material

25 **** Material 26 Floor-Plate 27 Connection Member

28, 29, 30, 31 Post 32 Inside side panel

33 Rear Panel 34 Outside Side Panel 35 Opening

36 42 Reinforcement frame of a door 37 Inside side-face window 38 Rear-face window

39 Outside Side-Face Window 40 Roof Panel 41 Roof Window

43 Handle 44, 44', 46, 47 and 49, 49', 50 Roller

45, 45', 48 and 51, 51' Roller arm 52 Pin 53 Link 54 Fixed arm 55 Upper slide rail

56 ROWASURA -- Id -- Rail 57 Center Slide Rail

55', 57' Slide rail.

[Translation done.]